

Att'y Dkt. No. 003-078

U.S. App. No.: 10/662,376

1. (Canceled)
2. (Currently Amended) The method as claimed in claim 19, comprising:
flowing the steam-containing reaction mixture through a gas-permeable structure
with a catalytically active surface.
3. (Previously Presented) The method as claimed in claim 2, wherein the gas-
permeable structure comprises a foamed metallic or ceramic material.
4. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction
zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture;
catalytically afterburning the steam-containing reaction mixture; and
flowing the steam-containing reaction mixture through a gas-permeable structure
with a catalytically active surface;
~~The method as claimed in claim 2, wherein the catalytically active surface~~
comprises platinum.
5. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction
zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture; and

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catalytically afterburning the steam-containing reaction mixture; and

~~The method as claimed in claim 1, comprising:~~

causing the steam-containing reaction mixture to leave the evaporation zone via a throttle point and accelerating the steam-containing reaction mixture.

6. (Previously Presented) The method as claimed in claim 5, wherein accelerating comprises accelerating the reaction mixture to the speed of sound.

7. (Currently Amended) The method as claimed in claim 19, wherein the oxidizing agent comprises oxygen.

8. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture; and
catalytically afterburning the steam-containing reaction mixture;
~~The method as claimed in claim 1, wherein the oxidizing agent comprises~~
hydrogen peroxide.

9. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture; and

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catalytically afterburning the steam-containing reaction mixture;
The method as claimed in claim 1, wherein the fuel comprises hydrogen.

10. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction
zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture; and
catalytically afterburning the steam-containing reaction mixture;
The method as claimed in claim 1, wherein the fuel comprises a hydrocarbon.

11. (Previously Presented) The method as claimed in claim 8, wherein the fuel comprises natural gas.

12. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction
zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture;
catalytically afterburning the steam-containing reaction mixture; and
The method as claimed in Claim 1, comprising:
forming a product with a steam content of at least 99.9% by weight, a temperature of up to 2000 K, and a pressure of up to 30 bar.

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13. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction
zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture;
catalytically afterburning the steam-containing reaction mixture; and

~~The method as claimed in Claim 1, comprising:~~

introducing a steam product as working medium in an energy conversion process
which is free of CO₂ emissions.

14. (Currently Amended) A method for generating steam comprising:
introducing a fuel and an oxidizing agent in a stoichiometric ratio into a reaction
zone;
exothermically reacting the fuel and oxidizing agent to form hot reaction gases;
transferring the hot reaction gases into an evaporation zone;
introducing water in liquid form, vapor form, or both into the evaporation zone,
the water which is introduced being evaporated, superheated, or both as it mixes with the
hot reaction gases to form a steam-containing reaction mixture; and
catalytically afterburning the steam-containing reaction mixture; and

~~The method as claimed in Claim 1, comprising:~~

introducing a steam product for treating special waste.

15. (Canceled)

16. (Currently Amended) A steam generator for generating steam comprising:
a combustion and evaporation chamber having a reaction zone for the exothermic
reaction of a fuel and an oxidizing agent, and an evaporation zone for the evaporation,
superheating, or both of an injected quantity of water;

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a device for feeding the fuel and the oxidizing agent into the reaction zone to form a fuel/oxidizing agent mixture;

an ignition device for igniting at least some of the fuel/oxidizing agent mixture;

a device for feeding water into the evaporation zone, to form a steam-containing reaction mixture;

an outlet nozzle for the steam-containing reaction mixture; and

a catalytic afterburning chamber arranged downstream of the reaction and evaporation chamber;

~~The steam generator as claimed in claim 15,~~ wherein the catalytic afterburning chamber comprises a housing and a through-flow body with a catalytically active surface, a free cross section of flow of the housing being acted on over a region of its axial length by the through-flow body.

17. (Previously Presented) The steam generator as claimed in claim 16, the afterburning chamber comprises a substantially cylindrical flow passage.

18. (Previously Presented) The steam generator as claimed in claim 17, wherein the housing comprises a double-casing tube.

19. (Previously Presented) The steam generator as claimed in claim 18, wherein the housing of the afterburning chamber is air-cooled.

20. (Previously Presented) The steam generator as claimed in claim 16, wherein the through-flow body comprises a foamed metal material or a foamed ceramic material.

21. (Previously Presented) The steam generator as claimed in claim 16, wherein the through-flow body comprises a metallic or ceramic honeycomb structure.

22. (Previously Presented) The steam generator as claimed in claim 16, further comprising a gas-analysis device arranged downstream of the through-flow body.

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23. (Previously Presented) The steam generator as claimed in claim 22, further comprising a lambda sensor arranged inside the flow passage.

24. (Previously Presented) The steam generator as claimed in claim 22, further comprising:

a removal pipe;

a pressure-relief device;

a chamber including the gas-analysis device;

wherein the housing of the afterburning chamber has a through-opening for the removal pipe, the removal pipe being gas-permeable toward the flow passage; and

wherein the removal pipe outside the housing is in communication, via the pressure-relief device, with the chamber including the gas-analysis device.

25. (Previously Presented) The steam generator as claimed in claim 24, wherein the gas-analysis device comprises a lambda sensor.